# PATENT COOPERATION TREATY

# **PCT**

# TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 8850 WO GI-RIX	FOR FURTHER ACTION	See Form PCT/IPEA/416					
International application No.	International filing date (day/monta	n/year) Priority date (day/month/year)					
PCT/EP2004/011031	02.10.2004	30.10.2003					
International Patent Classification (IPC) or nati	onal classification and IPC						
F16H3/66,F16D25/10,F16H63/30							
Applicant							
ZF FRIEDRICHSHAFEN AC	3						
under Article 35 and transmitted to th	e applicant according to Article 36.	ed by this International Preliminary Examining Authority					
2. This REPORT consists of a total of _	6 shee	ets, including this cover sheet.					
3. This report is also accompanied by A	NNEXES, comprising:						
a. (sent to the applicant and	to the International Bureau) a total	of 13 sheets, as follows:					
		have been amended and are the basis for this report and/or					
sheets containing red Instructions).	sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative						
sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental							
Box.							
b (sent to the International .	Bureau only) a total of (indicate type	and number of electronic carrier(s))					
		, containing a sequence listing and/or tables					
related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).							
This report contains indications relations	ng to the following items:						
Box No. I Basis of the	report						
Box No. II Priority							
Box No. III Non-establi	shment of opinion with regard to no	velty, inventive step and industrial applicability					
Box No. IV Lack of unit	y of invention						
DON 110. 1							
Box No. VI Certain doc	uin documents cited						
Box No. VII Certain defe	Box No. VII Certain defects in the international application						
Box No. VIII Certain obse	Box No. VIII Certain observations on the international application						
Date of submission of the demand	Date of com	oletion of this report					
Name and mailing address of the IPEA/EP	Authorized of	Authorized officer					
Facsimile No.	Telephone N	о.					

International application No.

PCT/EP2004/011031

Box	No. I	I Basis of the report					
1.		h regard to the language, this report is based on the internation cated under this item.	onal application in the language in	which it was filed, unless otherwise			
	This report is based on translations from the original language into the following language which is the language of a translation furnished for the purposes of:						
		international search (Rule 12.3 and 23.1(b))					
		publication of the international application (Rule 12.4					
_	XX7:41.	international preliminary examination (Rule 55.2 and		shoote which have been formished to the			
2.	rece	With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):					
		the international application as originally filed/furnished					
	$\bowtie$	the description:					
		pages <b>1-61</b>		as originally filed/furnished			
		pages*	received by this Authority on				
		pages*	received by this Authority on				
	$\boxtimes$	the claims:					
		nos.		as originally filed/furnished			
		nos.*	as amended (togethe	r with any statement) under Article 19			
		nos.* 1-52	received by this Authority on	23.09.2005 with letter of 21.09.2005			
		nos.*	received by this Authority on				
	$\boxtimes$	the drawings:					
		sheets 1/11-11/11		as originally filed/furnished			
		sheets*					
		a sequence listing and/or any related table(s) – see Supplem					
3.		The amendments have resulted in the cancellation of:					
		the description, pages					
		the claims, nos.					
		the drawings, sheets/figs					
		the sequence listing (specify):					
		any table(s) related to sequence listing (specify):					
4.		This report has been established as if (some of) the amend they have been considered to go beyond the disclosure as fi					
		the description, pages					
		the claims, nos.					
		the drawings, sheets/figs					
		the sequence listing (specify):					
		any table(s) related to sequence listing (specify):					
*	If ite	em 4 applies, some or all of those sheets may be marked "sup	erseded."				

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
1.	Statement				
	Novelty	(N) Claims 1-52 Claims	YES NO		
	Inventiv	Claims 1-52 Claims	110		
	Industria	l applicability (IA) Claims 1-52 Claims			
2.	Citations and explanations (Rule 70.7)				
	1.	The present report makes reference to the following documents:			
		D1: EP 1 265 006 A (GENERAL MOTORS CORPORATION) 11 December 2002 (2002-12-11)			
		D2: DE 199 12 480 A1 (ZF FRIEDRICHSHAFEN AG) 28 September 2000 (2000-09-28).			
	2.	INDEPENDENT CLAIM 1			
	2.1	Document D2 is considered to be the prior art closest to the subject matter of claim 1. Said document discloses (the references in parentheses are to document D2, see figure 3):			
		a multistep automatic transmission with a drive shaft (10), an output shaft (11), at least three single planetary gear sets (2, 3, 4), and at least five shift elements (5-9), wherein:			
		- the three planetary gear sets (2, 3, 4) are mutually coaxial;			
		- the second and third planetary gear sets (3, 4) are mutually adjacent in an axial direction;			

Box No. V

citations and explanations supporting such statement a sun gear (20) of the third planetary gear set (4) can be attached to the transmission housing of the multistep automatic transmission via the first shift element (7); the drive shaft (10) is connected to a sun gear (16) of the second planetary gear set (3); the drive shaft (10) can be connected via the second shift element (8) to a sun gear (12) of the first planetary gear set (2) and/or via the fifth shift element (9) with a spider (15) of the first planetary gear set (2); alternatively, the sun gear (12) of the first planetary gear set (2) can be attached to the transmission housing via the third shift element (5) and/or the spider (15) of the first planetary gear set (2) can be attached to the transmission housing via the fourth shift element (6); and the output shaft (11) and an internal gear

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;

the output shaft (11) and an internal gear (14) of the first planetary set (2) and a spider of the third planetary gear set (4) are interconnected and a spider (19) of the second planetary gear set (3) is connected to an internal gear (22) of the third planetary gear set (4) and the spider (15) of the first planetary gear set (2) is connected to an internal gear (18) of the second planetary gear set (3); and

/ . . .

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- only one shaft (10) passes centrically in an axial direction right through the second planetary gear set (3); and
- the first shift element (7) is in the form of a multi-disk brake.

Thus, the subject matter of claim 1 differs from the known automatic transmission in that:

- a) the second and fifth shift element, viewed in a three-dimensional manner, are axially arranged between the first and second planetary gear sets; and
- b) the fourth shift element, viewed in a threedimensional manner, is in a region radially above the planetary gear sets.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

2.2 The problem addressed by the present invention can consequently be regarded as that of configuring the known transmission in a more compact manner.

The solution to the above problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)). The reasons are as follows:

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although document D1 (see figure 1) discloses a similar transmission, in which the corresponding second and fifth shift elements (50 and 52) are between the first and the second planetary gear set (30 and 40), said transmission does not have two features of the preamble of claim 1 and feature b) is not disclosed in document D1. Neither D1 nor D2 contains anything to suggest this feature which, furthermore, contributes to the compact design of the transmission.

2.3 Claims 2 to 52 are dependent on claim 1 and, in consequence, likewise satisfy the requirements of the PCT in respect of novelty and inventive step.